Alvania valeriae (Gastropoda: Rissoidae), a New Species from off Southeastern Brazil

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ABSTRACT

Alvania (*Punctulum*) *valeriae* new species, is found off the coast of Rio de Janeiro and Espírito Santo States, southeastern Brazil. It differs from other species of *Alvania* occurring off the Brazilian coast in having more numerous axial ribs (about 36 on the body whorl). Axial ribs are more pronounced than the 12–14 spiral threads, and nodules are not formed at their intersections.

Key words: Gastropoda, Rissoidae, *Alvania*, Brazil

INTRODUCTION

Alvania (*Punctulum*) *valeriae* new species was collected on the continental shelf off Rio de Janeiro and Espírito Santo States, in dredgings taken during the oceanographic operations Espírito Santo I (July to September, 1984), and Cabo Frio VII (March to July 1983), as part of routine sampling by the Brazilian Navy to obtain basic oceanographic data on the coastal and oceanic regions off Brazil. The malacofauna found during these operations was characterized by numerous small mollusks, among which the Rissoidae were prominent (Absalão, 1989).

The first descriptions of rissoids that occur off Brazil, or would later have their ranges extended to Brazilian waters, are those of d'Orbigny (1842), Watson (1886), who studied the material collected by the H.M.S. Challenger, and Dall (1889), who worked with material collected by U.S.S. Blake (Romer & Moore, 1988). Since 1966, malacological material from off the Brazilian coast has been obtained on a more regular basis, thanks to the dredging operations of the Brazilian Navy (Absalão, 1986). The minute specimens (< 5 mm) have received almost no attention. The Rissoidae especially "have proved to be very difficult to classify at all levels because of their small size, diverse form, and confusion caused by convergence, especially in shell characters" (Ponder, 1985). Abbott (1974) stressed that the entire group was in need of revision before species could be assigned to subgenera. The revision of Coan (1964) was mainly a bibliographic compilation. Ponder (1985) made the last and most complete revision of this family at the generic level.

ABBREVIATIONS

IBUFRJ = Instituto de Biologia da Universidade Federal do Rio de Janeiro, Brazil.
MORG = Museu Oceanográfico da Fundação Universidade de Rio Grande, Brazil.
USNM = National Museum of Natural History, Smithsonian Institution, USA.
MZUSP = Museu de Zoologia da Universidade de São Paulo, State of São Paulo, Brazil.
MNUFRJ = Museu Nacional do Rio de Janeiro, State of Rio de Janeiro, Brazil.
MNHN = Museum National d'Histoire Naturelle (Paris), France.

SYSTEMATICS

Family **Rissoidae** H & A. Adams, 1854

Genus *Alvania* Risso, 1826

Type species: *Turbo cimex* Linnaeus, 1758.

There are three previously described species of *Alvania* that occur off the Brazilian coast: *A. auberiana* (Orbigny, 1842), *A. deliciosa* Jeffreys, 1884 and *A. xanthias* (Watson, 1885). The first occurs in shallow waters and the latter two at greater depths.

Alvania (*Punctulum*) *valeriae* Absalão, new species (figures 1–3)

Description: Shell minute, 1.6 to 2.4 mm long, white ovate-conic, with rounded whorls. Suture well impressed, slightly canaliculated. Protoconch multispiral, smooth, with 2½ whorls. Apical angle 52–65°. Teleoconch with about 36 gently curved axial ribs and 12–14 spiral threads on body whorl. Axial ribs override spiral threads without forming nodules at intersections. Base rounded with 6–8 spiral threads. Intritacalx present over entire teleoconch. Terminal varix absent. Umbilicus small, chink-like, well defined. Operculum and radula unknown.

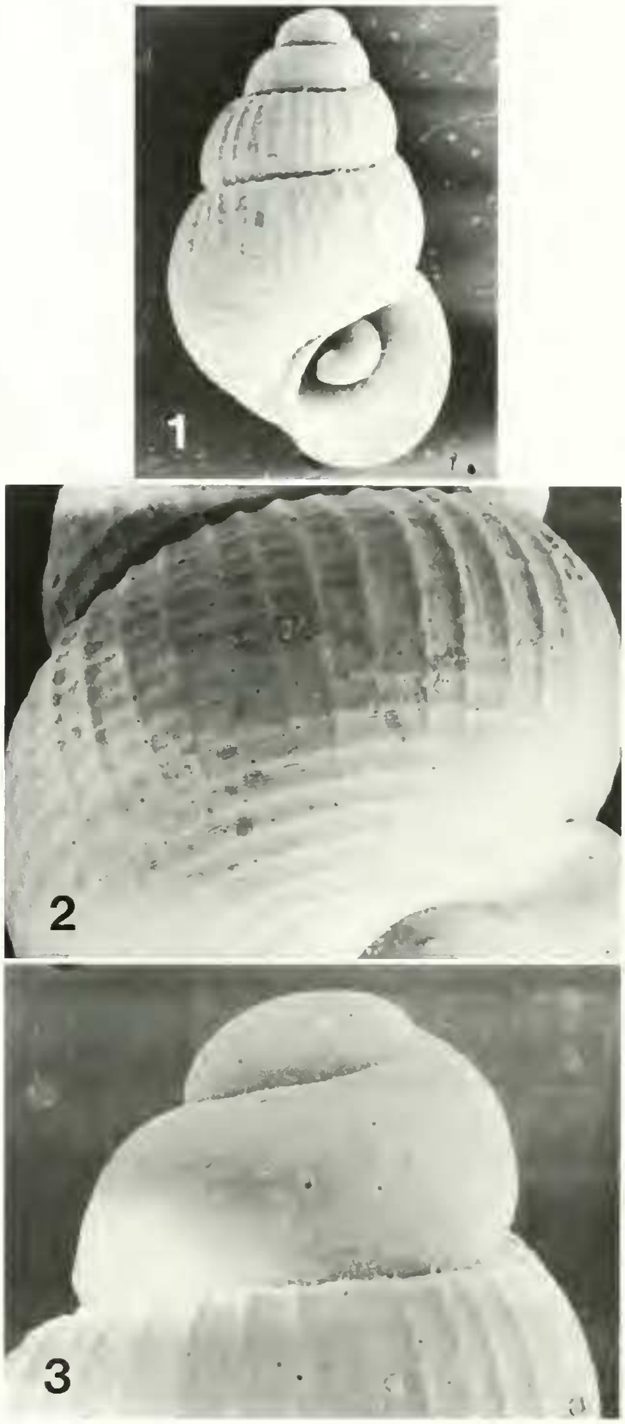
Type locality: Off southeastern Espírito Santo State, southeastern Brazil (20°38′12″S, 40°16′12″W), 38 m depth, 22.5°C and 36.7 ppt salinity, Brazilian Naval Research Vessel Almirante Saldanha, station 6449, August 23, 1984.

Type material: Holotype IBUFRJ 1726, 1.74 mm height, 1.02 mm width. Paratype 1, MORG 26986 off northeastern Rio de Janeiro State, Brazil (23°08′18″S, 41°03′18″W), 85 m depth, 16.7°C and 36.2 ppt salinity, Almirante Saldanha, station 6417, August 29, 1984, 1.80 mm height, 1.04 mm width. Paratype 2, USNM 860503, off northeastern Rio de Janeiro State, Brazil (22°35′00″S, 40°50′00″W), depth 77 m, 19.2°C and 36.1 ppt salinity, Almirante Saldanha, station 6422, August 16, 1984, 1.80 mm height, 1.04 mm width. Paratype 3, MZUSP 27716, off Rio de Janeiro State, Brazil (23°16′50″S, 43°02′40″W), Almirante Saldanha station 6174, depth 92 m, 15.6°C and 35.5 ppt salinity, March 29, 1983, 1.80 mm height, 1.04 mm width. Paratype 4, MNUFRJ 5978, off Rio de Janeiro State, Brazil (23°16′50″S, 43°02′40″W), Almirante Saldanha station 6174, depth 92 m, 15.6°C, and 35.5 ppt salinity, March 29, 1983, 2.40 mm height, 1.28 mm width. Paratype 5, IBUFRJ 1727, off Rio de Janeiro State, Brazil (23°16′50″S, 43°02′40″W), Almirante Saldanha station 6174, depth 92 m, 15.6°C, and 35.5 ppt salinity, March 29, 1983, 2.16 mm height, 1.20 mm width. Paratype 6, MORG 27681, off Rio de Janeiro State, Brazil (23°16′50″S, 43°02′40″W), Almirante Saldanha station 6174, depth 92 m, 15.6°C, and 35.5 ppt salinity, March 29, 1983, 1.88 mm height, 1.04 mm width. Paratype 7, MORG 27682, off Rio de Janeiro State, Brazil (23°16′50″S, 43°02′40″W), Almirante Saldanha station 6174, depth 92 m, 15.6°C, and 35.5 ppt salinity, March 29, 1983, 1.80 mm height, 1.04 mm width. Paratype 8, IBUFRJ 1728, off Rio de Janeiro State, Brazil (23°16′50″S, 43°02′40″W), Almirante Saldanha station 6174, depth 92 m, 15.6°C, and 35.5 ppt salinity, March 29, 1983, 2.00 mm height, 1.12 mm width. Paratype 9, MNHN, off Rio de Janeiro State, Brazil (23°16′50″S, 43°02′40″W), Almirante Saldanha station 6174, March 29, depth 92 m, 15.6°C, and 35.5 ppt salinity, 1983, 1.84 mm height, 1.08 mm width.

Etymology: This species is dedicated to my wife, Mrs. Valéria Gomes Veloso.

Range: Records of *A. valeriae* are restricted to the region between northern Rio de Janeiro State and southern Espírito Santo State, southeastern Brazil.

Discussion: *Alvania colombiana* is compared to *A. valeriae* because both species occur in the same biogeographic region. However, they are not sympatric. As *Alvania* is largely a European group, comparisons with those warm-water species were included.



Figures 1–3. *Alvania valeriae* new species. **1.** Holotype, IBUFRJ 1727; 120×. **2.** Ornamentation details, 240×. **3.** Protoconch, 240×.

Alvania auberiana, *A. deliciosa* and *A. xanthias* have respectively 14, 14 and 12–14 axial ribs, whereas *A. valeriae* has 32–40 ribs. This character alone is sufficient to discern it from the other species occurring in Brazilian waters. In addition, A. *auberiana* has 5 spiral threads on its teleoconch, A. *deliciosa* has 10, A. *xanthias* has only 4 spiral threads that are restricted to the base, whereas A. *valeriae* has 12–14 spiral threads (figures 1 and 2) on its teleoconch.

Alvania colombiana Romer and Moore, 1988 differs from A. *valeriae* in having only 26 axial ribs, which disappear on the base of the shell, and 7–9 spiral grooves. *Alvania valeriae* has ≈36 (32–40) axial riblets that extend only slightly over the body whorl without reaching the umbilical region of the shell, as well as 12–14 spiral threads.

Alvania porcupinae (Jeffreys, 1884) has a smooth protoconch very similar to that of A. *valeriae*, ≈32 axial ribs that disappear smoothly towards the umbilical region, while A. *valeriae* differs in having ≈36 (32–40) axial ribs that enter a little beyond the edge of the penultimate whorl. The diameter of the last two whorls increases greatly in A. *porcupinae*, but little in A. *valeriae*.

Alvania zylensis Gofas and Warén 1982, and A. *imperspicua* Palary, 1920 can be easily distinguished from A. *valeriae* on the basis of protoconch sculpture. The protoconch of A. *valeriae* is smooth, that of A. *zylensis* has 12 zigzag spiral lines that intersect, forming a reticulated pattern, while that of A. *imperspicua* has 7–8 spiral lines that also zigzag but do not intersect. In addition, A. *imperspicua* has protruding nodules on the teleoconch, which are formed by the junction of axial riblets and spiral lines. In contrast, A. *valeriae* lacks such nodules.

Although A. *valeriae* is similar in shape to A. *compacta*, this latter species has fewer axial riblets (20–30) and spiral threads (6–8) than the former, which has ≈36 (32–40) axial riblets and 12–14 spiral threads. *Alvania compacta* also has nodules where axial and spiral ornamentation cross.

Alvania valeriae is unique among its southwestern Atlantic congeners in having a large number of axial ribs that clearly dominate the 12–14 spiral threads.

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LITERATURE CITED

Abbott, R. T. 1974 American Seashells, 2nd ed. Van Nostrand Reinhold, N.Y., 663 p.

Absalão, R. S 1986. Moluscos da Comissão Oceanográfica Geocosta Rio I, RJ, Brasil. Revista Brasileira de Biologia 46(1):27–31.

Absalão, R. S. 1989 Padrões distributivos e zoogeografia dos moluscos da plataforma continental brasileira. Parte III. Comissão Oceanográfica Espirito Santo I. Memórias do Instituto Oswaldo Cruz 84, Suplemento IV:1–6.

Coan, E. 1964. A proposed revision of the Rissoacean families Rissoidae, Rissoinidae, and Cingulopsidae (Mollusca:Gastropoda). The Veliger 6(3):164–171.

Dall, W. H 1889. Reports on the results of dredging in the Gulf of Mexico (1877–78) and in the Caribbean Sea (1879–80) by the U.S. Coast Survey Steamer "Blake". 29. Report on the Mollusca, part II. Gastropoda and Scaphopoda Bulletin of the Museum of Comparative Zoology 18:1–492, pls. 10–40

d'Orbigny, A 1842. Mollusques, Vol. 1 (part). *In:* R de la Sagra (ed.). Histoire Physique, politique et naturelle de l'Ile de Cuba. Bertrand, Paris, p. 209–264 + Atlas, pls. 1–28 + 11 bis.

Gofas, S and A. Warén. 1982. Taxonomie de Quelques Especes du Genre *Alvania* (Mollusca, Gastropoda) des Côtes Ibériques et Marocaines. Bolletino Malacologico 18(1–4): 1–16.

Ponder, W F. 1985. A review of the Genera of the Rissoidae (Mollusca: Mesogastropoda: Rissoacea). Records of the Australian Museum, Supplement 4:1–221.

Rios, E. C. 1985. Seashells of Brazil. Museu Oceanográfico da Fundação Universidade de Rio Grande, 331 p. + 102 plates.

Romer, N. S. and D. R. Moore. 1988. A new species of *Alvania* (Rissoidae) from the West Indian Region. The Nautilus 102(4):131–133.

Watson, R. B. 1886. Report on the Scaphopoda and Gasteropoda collected by H.M.S. *Challenger* during the years 1873–1876. Voyage of the H.M.S. *Challenger*, Zoology 15. 1–675, appendix A, p. 677–680, geographical distribution, p. 691–722; index, p. 723–756; pls. 1–50